$\begin{array}{l} \underline{y\text{-dir.}}\\ V_i = \\ V_f = \\ a_y = \\ \Delta y = \\ t = \end{array}$

Vy =

 $\begin{array}{l} \underline{y\text{-dir.}}\\ V_{i} = \\ V_{f} = \\ a_{y} = \\ \Delta y = \\ t = \end{array}$

 \cap

30°

110 m/s

Vx =

2012 PreAP Two Dimensions 8

x-dir.

 $\overline{V_i} = V_f =$

 $a_x = \Delta x =$

t =

()

 $\frac{x\text{-dir.}}{V_i} = V_f =$

 $a_x =$

 $\Delta x = t =$

Ο

Ο

1. * A projectile is launched at 30° going 110 m/s. Calculate the time in the air and how far away it lands. You may use the diagram if you need to. (*Full key on back: don't just copy: learn.*)

 \cap

?

2. * An object is launched horizontally from the top of an 8 m tall ledge going 30 m/s.

3. An object (say "Jar Jar Binks") is launched at 45° and 32 m/s. How high does he go?

9 m/s B + m/s 2 m 1.5 m

32 m/s

45°

 Two objects are shot from horizontal platforms as shown. Which ball (A or B) is in the air for the most time?



- 5. A. Which ball (C or D) takes the most time to hit the ground?
 - B. Which ball has the greatest range?



- 6. Ball A or B above?A. Has the greatest y-velocity?
 - B. Will go the highest?

Due Tues, Sept 27





?

2011 PreAP Two Dimensions 8

* A projectile is launched at 30° going 110 m/s. Calculate the time in the air and how far away it lands. You may use the diagram if you need to. (Full key on back: don't just copy: learn.)

$$y = dir.$$

 $V_{f} = V_{i} + at$
 $s_{5} = s_{5} - 9.8t$
 $10 = -9.8t$
 $t = 11.2 sec$
 $U = 57$
 $U = 1067$
 $U = 1067$

$$D = 51 = 95.3(11.2) = 1067.4 m$$

An object is launched horizontally from the top of n 8 m tall ledge going 30 m/s.

$$\begin{array}{c|c} \frac{y-\text{dir.}}{V_i = 0^m/s} & \frac{x-\text{dir.}}{V_i = 30^m/s} \\ V_f = ? \\ A_y = .9 \\ \Delta y = .-8m \end{array} \xrightarrow{\begin{array}{c}30 \text{ m/s}\\ A_y = .9 \\ \Box \end{array}} \xrightarrow{\begin{array}{c}30 \text{ m/s}\\ A_y = .28m \end{array}} \xrightarrow{\begin{array}{c}30 \text{ m/s}\\ A_x = .28m \end{array}} \xrightarrow{\begin{array}{c}30 \text{ m/s}} \xrightarrow{\begin{array}{c}30 \text{ m/s}}\\ \xrightarrow{\begin{array}{c}30 \text{ m/s}} \xrightarrow$$

Ο

x-dir.

 $\overline{V_i} = 95.3 \text{m/s} 1.$ $V_f = 95.3 \text{m/s}$

_]

By

 $a_x = Om/s^2$

 $\Delta x = 57$ t = 11.2 sec

 $S = \stackrel{D}{=}$

x-dir.

a_x =

O

 $\Delta x =$ t =

Ο

4_dir.

An object (say "Jar Jar Binks") is launched at 45° and 32 m/s. 3. How high does he go? only = y-dir. question $V_y = 325in 45^\circ = 22.6 m/s$ $V_f = 0 m/s$ $U_{F^{2}} = U_{1}^{2} + 2^{3} p_{y}^{2}$ $O = 22.6^{2} - 19.6^{4} y$

22.6 m/s

Ο

32 m/s

45°

Ο

= Omls -97 ?!

4. Two objects are shot from horizontal platforms as shown. Which ball (A or B) is in the air for the most time?

cstephenmurray.com



- 510.76 =- 19,6 Ay

26.1 m = 24

- Which ball (C or D) takes the 5. A. most time to hit the ground?
 - B. Which ball has the greatest range?



- 6. Ball A or B above? A. Has the greatest y-velocity?
 - B. Will go the highest?

Copyright © 2011, C. Stephen Murray